

A BRIEF RESUME

of

DIATHERMY

Prepared for:

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I. MEDICAL DIATHERMY:

A. Diathermy means "to heat through"; and is secured by passing high frequency currents through tissues; the heat effect is due to the natural resistance of the tissues to the passage of the current; the frequency of the current being so high does not elicit neuro-muscular response.

B. Affects;

1. Tissues are heated uniformly throughout the part being treated, within their physiological limits.
2. A controlled hyperemia is produced.
3. Tissues are bathed by an increased blood supply.
4. Phagocytosis is augmented.
5. Stasis is broken up.
6. Toxins and traumatic exudates absorbed and removed via increased venous drainage.
7. Blood-cell forming mechanism is benefitted.
8. A sedative action due to the removal of neuro-toxins.

C. Contra-Indications;

1. Walled off pus.
2. Recent hemorrhage.
3. Through the female pelvis 36 hours before or after menstruation.
4. Through the pelvis during any stage of pregnancy.
5. During the soft callous forming stage of healing fractures.

D. Technic; Methods of application;

1. Plate & Plate Method: the part to be treated is sandwiched between two electrodes; if heating effect is desired nearer one surface than the other, then the electrode on that surface must be the smaller of the two. (Most desirable Method) .
2. Plate & Cuff Method: as, the hand rests on one electrode and a cuff is placed around the fore-arm.
3. Water & Cuff Method: as, the hand is placed in a glass or earthenware vessel and covered at least one inch with salt solution, and a cuff is placed on the fore-arm.

4. Cuff & Cuff Method: as, one cuff is placed above the knee or mid-thigh, and the other cuff is placed below about the middle of the leg.

E. Preparation of electrodes;

1. Smooth block-tin electrodes on a perfectly flat surface.
2. Remove all sharp corners and wrinkles from electrodes.
3. Apply contact-medium to both electrode and surface of contact.

NOTE: Contact Medium;

Sodium chloride drams 1.
Glycerine q.s. ounces 4

Sig: Warm solution slightly to dissolve salt;
allow undissolved salt to settle out;
add glycerine (as used) until salt supply
is exhausted.

4. Hold electrodes and cord-tip attachments securely in position with sand-bags or elastic bandages. Keep elastic bandages clean and free of contact medium.

F. Administration of treatment;

1. Completely close spark-gap; intensity control on lowest setting.
2. Turn on main switch and gradually advance intensity by opening spark-gap. Advance in first minute about one-third of maximum intensity of spark-gap. (Maximum intensity of spark-gap is about one-sixteenth of an inch). After two minutes advance another third. And after two more minutes advance the other third.
3. In the next five to ten minutes advance spark-gap and intensity-control to maximum for the treatment.

Note: The maximum dose in most cases can be determined by the patient's tolerance. When this is not to be relied upon a safe limit of 60 M.A. per square-inch can be used as a guide.

4. Allow maximum dose to run for ten to twenty minutes; interrupting when necessary for manipulation, massage or adjustment of electrodes.
5. Retard intensity slowly (five to ten minutes), completely closing spark-gap and turn main switch in OFF position before disconnecting patient.

II. SURGICAL DIATHERMY:

A. Surgical diathermy is secured by passing high frequency currents through tissues, heating them beyond their physiological limits, producing actual tissue destruction, either by dehydration or coagulation.

B. Affects;

1. The rapid effective destruction of abnormal growths.
2. Blood and lymph channels are sealed, preventing subsequent metastasis or hemorrhage.
3. Sterilization of wound.
4. A good cosmetic effect.
5. Divided nerve fibers are sealed over in such a way as to render them less sensitive; less shock and less pain during the postoperative and convalescent periods.

C. Cautions;

1. Danger of explosion of anesthetics and highly combustible cleaning agents used in or about the lesion treated.
2. Danger of explosion of ligated blood vessels in and around the lesion treated.
3. Healing is slower than scalpel surgery; sutures and skin-clips must be left in place from two to six days longer.
4. Adequate drainage provided for increased serous drainage.
5. Metal instruments lying on the skin adjacent to the area treated must be insulated from the skin.

D. Technic;

1. The extent of destruction is determined by the size and depth of the lesion.
2. For superficial lesions a mono-polar current of light or mild intensity, with actual sparking to the lesion from the electrode.
3. For lesions involving more than the upper layers of the skin a mono-polar current of moderate intensity, in contact with lesion; the terminal point of the treatment is indicated by a blanched border of the lesion. Slough follows this treatment.
4. For more extensive lesions, where deeper destruction is required a bi-polar current of moderate intensity, buried within the lesion; terminal point is carbonization; currentment of such is advisable.

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LIGHT THERAPY

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Spectrum analysis of light energy; THE SPECTRUM,

INFRA-RED		VISIBLE LIGHT							ULTRA-VIOLET	
Far	Near	R	O	Y	G	B	I	V	Near	Far
(Element)	(Bulb)	(Carbon - Arc)							(General)	(Local)
HEAT		Under research							CHEMICAL (Catalyst)	

MERCURY QUARTZ ULTRA - VIOLET LIGHT:

I. ALPINE: Air-cooled Ultra-Violet light: GENERAL APPLICATION

A. Affects;

1. Essentially a metabolic stimulant.
2. Indirectly bactericidal.
3. Enhances glandular activity.
4. Aids calcium fixation.
5. Restores acid-alkaline balance.
6. Restores oxygen-carbon dioxide balance.
7. Increases R.B.C. and W.B.C. (only temporarily).

B. Contra-indications;

1. Extreme toxic conditions (See fractional dosage).
2. Drugs;
 - a). Quinine sulfate.
 - b). Analine dyes and their derivatives.
 - c). The heavy metals.
3. Diabetes (Treat with caution).

C. Cautions:

1. Protect the eyes (black paper shades or oil).
2. " " nipples (Only).
3. " " umbilicus (When protruding).
4. " " scars (When elevated).
5. Use only dark (black) treatment-table covers and pillow-slips. Avoid anything that would reflect rays.

D. Technic; Tonic Ultra-Violet:

1. Precede each treatment (2 to 6 hours) by a soap and water bath.
2. A course of treatments consists of 12 to 16 treatments.
3. The entire body (in the anatomical position) is to be radiated; front and back.
4. Use sub-erythema dose (see Calibration Chart). Avoid tanning.
5. Treatments are given on alternate days. Never super-impose a new reaction on an old one.
6. An increase water in-put is advisable during course of treatments.
7. Increase each treatment by one minute; front and back.

E. Sub-Erythema Dose; CALIBRATION CHART

COMPLEXION	TIME	DISTANCE
Light	1 MIN.	30 INCH
Average	2 MIN.	30 "
Dark	3 MIN.	30 "
Very dark	5 MIN.	30 "

* Rule; To double the intensity, half the distance.

(January 22, 1940.)

F. Fractional Dose; Used in extreme toxic conditions:

1. The sub-erythema dose is used (See Calibration Chart).
2. Treatments are given on alternate days.
3. First treatment - feet to knees - front only.
4. Second " - feet to knees - front and back.
5. Third " - feet to hips - front only.
6. Fourth " - feet to hips - front and back.
7. Fifth " - anatomical position - front only.
8. Sixth " - " " - back only.
9. Seventh " - " " - front and back.
10. Eighth " - increase by one minute and continue as Tonic Ultra-Violet Light.

II. KROMAYER: Water-cooled Ultra-Violet Light: LOCAL APPLICATION

A. Contra-Indications;

There are no contro-indications to local ultra-violet light.

B. Affects;

Degree erythema	Appearance of reaction	Action
First	Mild blush	Essentially a metabolic stimulant.
Second	Reddening	Bactericidal and granulating.
Third	Intense reddening	Exfoliating.
Fourth	Blistering	Epilating.

C. Cautions;

1. Limit the area to be reacted.
2. Thoroughly cleanse area by removing crusts, scabs, secretions and exudates. A fifty per-cent alcohol solution is advisable.
3. Avoid the use of greasy or oily dressings.
4. Always react at least one-quarter of an inch of the border of an open lesion.
5. Avoid a tight dressing following reaction.

D. CALIBRATION CHART:

Degree erythema	Time of appearance	Duration	Distance	Time
First	2 hours	6 hours	2 INCH	7 SEC.
Second	1 hour	12 hours	2 "	15 SEC.
Third	$\frac{1}{2}$ hour	3 days	2 "	30 SEC.
Fourth	$\frac{1}{4}$ hour	1 week	2 "	45 SEC.

(January 22, 1940)

E. Applicators;

1. Thoroughly cleanse quartz-window and quartz-applicator with alcohol.
2. For contact treatment on skin, reduce exposure time two-thirds.
3. For contact treatment on mucus membranes, reduce exposure time by one-half.